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THESIS

**THE ROLE OF U.S. MARITIME POLICY IN STRATEGIC
SEALIFT**

by

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March 2000

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Strategic sealift is essential to the Department of Defense for it to carry out its national security mission. Surge sealift is provided primarily by DoD's organic fleet. Sustainment sealift is accomplished through chartering commercial ships. U.S. maritime policy places the primary requirement for sustainment sealift on the U.S. maritime industry. Policies dating to the 1920s attempt to ensure an adequate number of ships by providing operating subsidies and cargo preference. Despite these policies, the size of the U.S. commercial fleet has declined. DoD uses foreign flag ships to meet its needs when U.S.-flagged vessels are not available. Foreign flag ship use is significant and presents risk to the conduct of military operations. The world maritime industry has undergone significant change. The rise of flags of convenience and open registries has altered the industry. This thesis reviews U.S. maritime policy, DoD's requirement for sealift and options for obtaining sealift. It identifies and explores the nature of the risk related to strategic sealift facing the DoD as it enters the 21st century and suggests that the risk associated with the use of foreign flag vessels is low.

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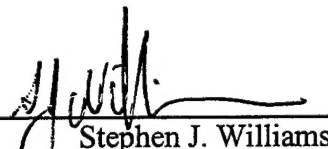
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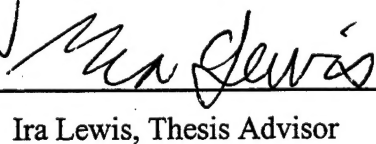
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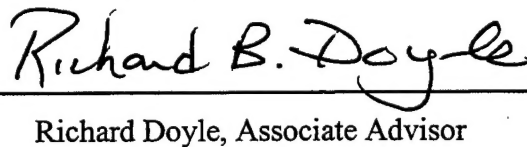
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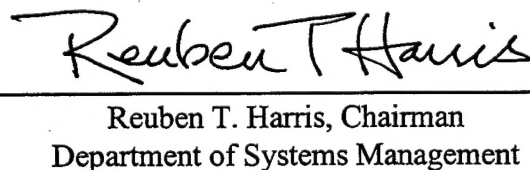
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Strategic sealift is essential to the Department of Defense for it to carry out its national security mission. Surge sealift is provided primarily by DoD's organic fleet. Sustainment sealift is accomplished through chartering commercial ships. U.S. maritime policy places the primary requirement for sustainment sealift on the U.S. maritime industry. Policies dating to the 1920s attempt to ensure an adequate number of ships by providing operating subsidies and cargo preference. Despite these policies, the size of the U.S. commercial fleet has declined. DoD uses foreign flag ships to meet its needs when U.S.-flagged vessels are not available. Foreign flag ship use is significant and presents risk to the conduct of military operations. The world maritime industry has undergone significant change. The rise of flags of convenience and open registries has altered the industry. This thesis reviews U.S. maritime policy, DoD's requirement for sealift and options for obtaining sealift. It identifies and explores the nature of the risk related to strategic sealift facing the DoD as it enters the 21st century and suggests that the risk associated with the use of foreign flag vessels is low.

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I. INTRODUCTION

A. BACKGROUND

As we enter the 21st century, the United States military remains committed to its fundamental mission, protecting the security of the nation (NSC, 1997). To accomplish this task the United States is prepared to act militarily, unilaterally if necessary, to:

- Protect the sovereignty, territory and population of the United States
- Prevent the emergence of hostile regional coalitions or hegemonies
- Ensure uninhibited access to key markets, energy supplies and strategic resources
- Deter and, if necessary, defeat aggression against U.S. allies and friends
- Ensure freedom of the seas, airways and space as well as vital lines of communication (Cohen, 1999)

While these goals do not represent a change in the United States National Security Strategy (NSS), a change has occurred in the environment in which the United States operates.

Today the United States stands apart from the other nations of the world as the single world power. The collapse of the Soviet Union and the end of the Cold War left the United States alone at the top. The results of this change have had far reaching and intertwined social, economic and military impacts. No longer focused on the Soviet

threat, the United States is finding itself involved in more and more operations other than war, in locations around the globe.

The end of the Cold War also brought pressure to spend less money on the military and focus those savings on deficit reduction and domestic programs. This change in budgetary focus as well as the shift in threat resulted in a significant restructuring of the United States military force structure. Personnel and infrastructure were cut and a significant number of forward-based troops were returned to the continental United States (CONUS). The decision to base more troops in CONUS has created a new pressure as the United States conducts operations around the world. The ability to respond quickly, with the right forces has become even more important.

The National Military Strategy (NMS) developed to support the NSS has four strategic concepts: Strategic Agility, Overseas Presence, Power Projection, and Decisive Force (CJCS, 1997a). This new NMS represents a shift from a strategy of forward presence to a strategy of power projection (DoT, 1999) and has raised the importance of the role of transportation in military planning.

In order to fulfil the lift requirements that are associated with this new policy, the Department of Defense (DoD) has developed the concept of the mobility triad, composed of sealift, airlift and prepositioning. This triad is part of a larger group of activities known as logistics. Military logistics covers a broad spectrum of areas from facilities management and supply chain management to maintenance and transportation. Logistics plays a critical role in the U.S. vision of future warfighting.

Joint Vision 2010, the Armed Forces guide to the future, has four operational concepts: Dominant Maneuver, Precision Engagement, Full Dimensional Protection and Focused Logistics. Focused logistics will be "the fusion of information, logistics and transportation to provide rapid crisis response, to track and shift assets even while enroute, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, tactical level of operations" (CJCS, 1996). Power projection will remain the fundamental strategic concept of the Armed Forces, to be achieved through rapid strategic mobility. Sealift is the essential force in rapid mobility. "Logistics is the key and logistical support is based on sea transport" (Rhodes, 1997).

Historically, 95 percent of wartime forces and supplies have been moved by sea (Matthews and Holt, 1996). This reliance on sealift is expected to continue well into the future. Commercial sealift has been and will be a significant component of the strategic sealift effort. During Operation Desert Shield/Desert Storm there were 209 commercial ship charters, of which 177 were foreign flag (Matthews and Holt, 1996). These commercial ships were crucial to the successful deployment, sustainment and redeployment of U.S. forces.

Of concern, however, is the fact that the U.S. commercial shipping industry has never really been a leader in the world market despite impressive sealift efforts during both World Wars. The U.S. presence has declined sharply over the last 30 or so years (Whitehurst, 1985). U.S. maritime policy is designed to support the industry in order to meet the military's requirements and other national interests.

B. OBJECTIVE

This thesis will examine U.S. maritime policy and its use of commercial shipping (U.S. and foreign) in meeting national defense strategic sealift requirements.

Specifically, it will address the issue of the sufficiency of U.S.-flag carrier capacity and what can be expected from foreign flag carriers. It will also examine the risks associated with using foreign flag carriers and other steps that might be considered to ensure that the military's sealift requirements are met in the future.

This will be accomplished through a review and analysis of U.S. maritime policy with a focus on the role of organic (U.S. government owned) and U.S.-flag commercial vessels in strategic sealift. DoD policy on the use of foreign flag commercial vessels will be explored with a focus on its relationship to national policy.

C. RESEARCH QUESTIONS

Primary Question: What are the key features and major effects of U.S. maritime policy with respect to employment of organic, U.S.-flag and foreign commercial ships in support of national defense requirements?

Supporting Question 1: What are U.S. strategic sealift requirements and what is the basis for these requirements?

Supporting Question 2: How does DoD meet the strategic sealift requirement? Is DoD policy in line with national security policy?

Supporting Question 3: How does U.S. maritime policy support the DoD requirement?

Supporting Question 4: What role do commercial (U.S. and foreign) ships play?

Supporting Question 5: What are the risks associated with using commercial (U.S. and foreign) ships and how might they be mitigated?

Supporting Question 6: Are there alternative maritime policies the U.S. should explore to ensure adequate sealift in the future?

D. SCOPE, LIMITATIONS AND ASSUMPTIONS

The scope of this thesis will be limited to current U.S. maritime policy and the use of commercial (U.S. and foreign) shipping in support of national defense strategic sealift. The focus will be on sustainment sealift to forces outside of the United States. Sustainment sealift is that sealift required to maintain forces once they are in place with such items as food, spare parts and ammunition. Surge sealift, on the other hand, provides the initial lift for forces and is assumed to be adequate.

This assumption is based on the Mobility Requirement Study Bottom-up Review (1995) which identified a requirement for 10 million square feet of surge sealift capacity. This requirement will be met utilizing Fast Sealift Support (FSS) vessels, Ready Reserve Fleet (RRF) vessels and by the completion of the Long Range Medium Speed Roll on/Roll off (LMSR) vessel acquisition program

Although the topic of maritime policy also includes issues such as shipbuilding and cabotage neither of these issues will be addressed in this thesis.

E. ORGANIZATION

This thesis consists of five chapters.

Chapter II, "National Defense Strategic Sealift Requirements", will identify national defense strategic sealift requirements through a brief investigation of the U.S. national defense policy.

Chapter III, "U.S. Maritime Policy", will examine U.S. commercial shipping maritime policy as it relates to National Defense Strategic Sealift. It will also identify and briefly explain the U.S.-flag shipping industry, Effective U.S. Control vessels, and U.S. owned ships registered under a Flag of Convenience.

Chapter IV, "Risk and Strategic Sealift", will examine three options for ensuring adequate sealift resources and the risks associated with each option. DoD experiences with U.S. and foreign flag ships will be discussed.

Chapter V, "Summary and Conclusions", will summarize the previous chapters and make recommendations including areas of related future research.

II. NATIONAL DEFENSE STRATEGIC SEALIFT REQUIREMENTS

A. INTRODUCTION

The Gulf War served as a major transition point for the United States military. It clearly marked the end of the Cold War and the beginning of a new phase of U.S. military strategy. No longer would the U.S. military be focused on the Soviet Union; rather, they would have to be ready to respond around the world to conflicts of varying dimensions and durations.

U.S. forces are now based mostly in the United States and may be required to respond anywhere that they are needed. The threat of a single global conflict has been greatly reduced. The worst case scenario now planned for is two nearly simultaneous major theater wars (MTW), one in Southwest Asia (Persian Gulf region) and one on the Korean Peninsula. Other smaller conflicts are expected to flare up globally.

For the United States to be successful in meeting this new challenge, United States forces will have to be mobile and able to respond quickly. While the Gulf War was a success, it also served to highlight problem areas. One of these was the ability to rapidly move large numbers of troops and various equipment. Some existing assets were not up to the challenge, specifically many of the ships in the RRF. Activation of these ships was slower than anticipated due largely to propulsion and auxiliary equipment problems. The ships in the RRF had not been maintained (prior to 1991) at appropriate

levels of readiness (due largely to lack of full funding by Congress) (Matthews and Holt, 1996).

In the Gulf War, the United States was afforded over six months to move and build up troops and equipment in the region. It is generally believed that future conflicts will not allow this luxury. More recent operations such as those in Bosnia and Kosovo have involved sealift requirements. These operations have been on a much smaller scale than the Gulf War. The problems associated with these recent operations have been different from those of the Gulf War. The recent difficulties focus on getting the right type of vessel for the cargo being moved. In these cases early and accurate cargo information has not been provided or has changed at the last minute (Joerger, 1999).

The challenge then is to develop and maintain the capability to rapidly move troops and supplies around the world. To ensure this capability, the DoD has focused on three areas of transportation: airlift, sealift and prepositioning.

B. DEFENSE TRANSPORTATION SYSTEM

The Department of Defense has developed the Defense Transportation System (DTS) as a means to oversee and execute its transportation needs. The DTS is

that portion of the nation's transportation infrastructure, which supports DOD common-user transportation needs across the range of military operations. It consists of common-user military and commercial assets, services, and systems organic to, contracted for, or controlled by DOD. (USTRANSCOM, 1998)

The United States Transportation Command (USTRANSCOM), a Unified Command created in 1987, is charged with operating the DTS. Its mission is quite

simple - "to provide air, sea and land transport for DOD during peace and war" (USTRANSCOM 1998). USTRANSCOM achieves this mission through the three Transportation Component Commands (TCC) assigned to it. These include the Military Sealift Command (MSC), Air Mobility Command (AMC), and Military Traffic Management Command (MTMC). These commands report operationally to USTRANSCOM but administratively to their component service, Navy, Air Force and Army respectively.

Each TCC is responsible for a different type of transportation. MSC provides common-user and exclusive-user sealift, focused on prepositioned, surge and charter sealift vessels. MTMC offers common-user ocean terminal and traffic management, primarily "fort to port". MTMC is also responsible for contracting "liner shipping", that is, material shipped on regularly scheduled as opposed to chartered ocean transport. AMC provides common and exclusive-user airlift. This airlift includes fuel tankers and aeromedical evacuation as well as movement of cargo and personnel.

There are several non-DoD agencies with a role in the DTS. The most significant of these is the Department of Transportation, including the Maritime Administration (MARAD), Federal Aviation Administration, Federal Highway Administration, Federal Railroad Administration, U.S. Coast Guard and Office of Emergency Transportation.

MARAD's role is to "foster safe and efficient marine transportation for national defense and economic growth". It has a significant role in developing, implementing and nurturing commercial maritime policy. MARAD maintains and operates the RRF,

passing operational control to MSC when ships are activated. MARAD is also the agency responsible for administering the Voluntary Intermodal Service Agreement (VISA) with the U.S.-flag maritime shipping industry, a program established in 1996.

C. SEALIFT

One of the keys to a successful military operation is having the right equipment and supplies at the right place at the right time and in the right quantity. The mobility triad (sealift, airlift and prepositioning) is the primary means of accomplishing these tasks. Each has its appropriate place in the system (Table 1).

	Pro	Con
Airlift	Speed of arrival	Cost
		Capacity (per aircraft and total # of aircraft)
		Need for airfield
Sealift	Cost	Speed
	Quantity delivered	Need for port (Joint Logistics Over the Sea (JLOTS) precludes this need)
Prepositioning	Readiness	Right mix for conflict?
		Maintenance requirements
		Ports (Off-load)
		Where should vessels be prepositioned?

Table 1. Attributes of the Mobility Triad.

Sealift has long played an instrumental role in moving troops, equipment and supplies in support of U.S. military forces, reaching an all time high during World War II. Sealift accounted for 90-95 percent of all equipment and supplies moved into the region for Operation Desert Shield/Desert Storm (Matthews & Holt, 1996). This is roughly the same percentage accounted for by sealift in World War II and is the expected level for future conflicts. This level of sealift is to be accomplished through the rapid movement of equipment and supplies from CONUS as well as through the use of afloat prepositioned ships.

Airlift is fast and can provide support around the world, usually in less than 24 hours. Because aircraft have limited cargo capacity and significant weight constraints, only personnel and the most urgent items are moved by airlift. The actual number of aircraft available and turn around time also are limitations on the use of airlift. Use of airfields must be negotiated with host nations, and airfields must often be defended.

Sealift is able to deliver large quantities of material and equipment but at a slower rate than airlift. Shipping time by ocean from the U.S. can be one to three weeks. Sealift is best used for those items which are large, heavy and needed in bulk such as petroleum, oil and lubricants (POL), tanks, trucks, artillery and ammunition. In order to achieve rapid deployment of these types of items, much of it needed during the initial surge campaign, DoD has prepositioned a significant number of ships loaded with these types of items within four to five days sailing of potential areas of conflict.

The Navy, Marine Corps and Army have developed JLOTS, a system for off-loading the prepositioned ships without the need of the ships entering port. While JLOTS has its difficulties, it does reduce the need for host nation support. While JLOTS operations continue to be refined, the need for ports continues. Concerns exist about the availability and security of ports, similar to those about airfields.

Category	Dry	Tanker	PAX	Total
MSC Force	47	9	0	56
RRF	77	8	2	87
U.S. Commercial	110	88	1	199
Effective U.S. Control	81	84	10	175
Other Allies	48	11	0	59
Overall Total	363	200	13	576

Table 2. Strategic Sealift Inventory as of 1 January 2000. Source: Military Sealift Command. "Strategic Sealift Inventory". <http://msc.navy.mil/n35/quarterly.htm>. Accessed 27 January 00.

The U.S. Strategic Sealift Fleet is composed of forces that include assets of the MSC, MARAD's Ready Reserve Fleet, the U.S. commercial maritime fleet as well as vessels from other sources. Table 2 provides the inventory of these forces as of 1 January 2000.

D. SURGE VS. SUSTAINMENT SEALIFT

Sealift can be divided into two broad categories: surge and sustainment. Surge sealift is that category which provides the initial troops and equipment needed for a conflict. In general it includes large, heavy equipment such as tanks, artillery and trucks, items which do not lend themselves to airlift in sufficient quantity but are needed at the outset of a conflict. Roll on/Roll off ships suit this mission ideally. Equipment placed in afloat prepositioned ships also provides surge capability.

The second category of sealift is sustainment. This involves the movement of those items that are needed to sustain the troops and equipment once they have begun to fight. Items include food, clothing, spare parts, ammunition and POL. These are items that are needed in large quantities but are in smaller units and more easily put in traditional shipping containers.

E. MOBILITY REQUIREMENTS STUDY

As the United States military received lessons learned from the Gulf War and began to better understand the nature of conflicts it would be involved in, in the future, the DoD initiated a Mobility Requirements Study (MRS) to determine needs and identify existing resources and highlight shortfalls. The most recent study, Mobility Requirements Study Bottom-up Review (MRS BURU) was completed in 1995 and "reflects the regional threats of the past Cold War and post Desert Storm environment" (USTRANSCOM, 1999). A new study is presently underway with results expected in 2000.

F. MOBILITY REQUIREMENTS STUDY BOTTOM-UP REVIEW (MRS BURU)

The purpose of the MRS BURU was to identify the strategic lift required to support United States National Military Strategy in the year 2001 and the required mix of sealift, airlift and prepositioned assets given the fiscal realities (CJCS, 1995). It contains "an integrated mobility plan and provides a basis for developing a balanced mix of strategic lift needed for tomorrow's defense transportation system" (USTRANSCOM, 1999).

1. Surge

MRS BURU identified the need for 10 million square feet of surge sealift capacity (CJCS, 1995), primarily in the mode of roll on/roll off (RO/RO). To achieve this goal DoD, through the Military Sealift Command, undertook a major conversion and shipbuilding program that has resulted in the acquisition of 19 Long Range, Medium Speed RO/RO ships. When completed, this program will ensure that adequate organic surge and prepositioned capacity exists.

2. Sustainment

With regards to sustainment, MRS BURU is less specific. There are no absolute requirements for sustainment capacity. However, MRS BURU assumes that 85 percent of all resupply is expected to be moved by sea and that 95 percent of ammunition and POL will move by ship (CJCS, 1995). The study also notes that it is assumed that a large portion of the sustainment sealift -- at least 80 percent -- will be containerized.

The issue of containerization is important when discussing military sealift. The commercial manufacturing sector, which will supply much of the sustainment goods, uses containers extensively for shipping, especially overseas. The commercial transportation sector has also developed intermodal transportation techniques to quickly move containers across the country and from surface to sea transport. Existing DOD ships have only a limited container capacity (CJCS, 1995), and certainly not enough to meet military needs.

DoD has chosen not to develop its own container fleet to meet its sustainment needs as it has done to meet the surge requirement with the RO/RO fleet. DOD "plans on using commercial industry to move a large portion of its sustainment (ammunition and resupply)" (CJCS, 1995). In its initial analysis, DOD believes that there is sufficient capacity within available U.S.-flag, Effective U.S. Control (EUSC) and allied ships to meet its demand but the support of the U.S. and EUSC industry is critical. Without this support DoD will have to go to the worldwide shipping market or end up developing its own organic container fleet, both of which are risky and costly alternatives.

In order to ensure adequate sustainment capacity, the MRS BURU identified three potential courses of action.

1. Develop an aggressive plan for joint planning (military/civilian) to ensure sustainment lift availability.
2. Assist in the development of proposals to eliminate disincentives to U.S. ship ownership and registration.

3. Develop an organic container fleet.

The first of these items was brought to fruition with the Voluntary Intermodal Sealift Agreement (VISA), a result of the Maritime Security Act of 1996. This program will be discussed in more detail in a later chapter. The second item is a topic that goes beyond the military with impacts on the entire nation's industrial base. This topic will also be discussed in more detail later.

The final item, developing an organic (military owned) fleet, is the least desirable. The reasons for not building an organic sustainment sealift fleet are varied. The initial cost to build would be high; the LMSRs currently being acquired cost \$265 million each. Determining the requirements (how many, how big) would be difficult and could ultimately be driven by cost rather than by need. Once acquired, the ships would likely spend most of their time in a Reduced Operating Status (ROS), costing money but providing little utility. Adequate numbers of crew could be difficult to find and exacerbate existing manning problem with the RRF (GAO, 1994). Additionally, the current world market has adequate capacity for the types of ships needed for sustainment operations and these can be contracted quickly and easily.

While the building of an organic fleet is not appropriate for sustainment operations, such a fleet is appropriate for surge operations due to the time criticality of these operations and the lack of available commercial RO/RO capacity. In this case availability outweighs cost. In order to ensure adequate sustainment capacity, DoD must

focus on the first two items i.e., joint (commercial/military) planning and fostering a strong U.S. maritime industry.

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III. U.S. MARITIME POLICY

A. INTRODUCTION

The United States is a maritime nation. The first settlers arrived by sea; once settled, they shipped and received raw materials and goods around the world by ship. The maritime industry has played a significant role in the growth and development of the country, and has a long tradition of support to the military. The merchant marine is often called "the fourth arm of defense."

The U.S. government has an equally long history of providing legislative support to the maritime industry. As early as 1789, the U.S. enacted laws to protect and foster domestic American shipping by levying duties and taxes on foreign ships moving goods between U.S. ports (Whitehurst, 1985).

Despite its economic strength and status as a maritime nation, the United States has a tradition of having a relatively small merchant marine fleet. The highpoint of the maritime industry occurred long ago, between the early 1800's and the Civil War (Whitehurst, 1985). The end of the Civil War signaled the beginning of a long, slow demise for the U.S. commercial maritime industry. Ships which had transferred to foreign flags during the Civil War were not allowed to reflag with the United States and ship owners quickly found it was cheaper to operate with foreign crews (Beach, 1986).

The U.S. maritime industry has long suffered from several recurring problems that compound each other. In the late 1800's, the industry was slow to adapt to steel hulls and

steam power, as wood was plentiful and a strong wooden shipbuilding base existed. European countries lacked wood and so embraced steel ships, developing expertise and efficiencies. Even after Americans began to build steel ships, they fell behind and it proved difficult for the U.S. shipbuilding industry to catch up and compete.

Foreign ships soon became faster and larger, moving the majority of goods into and out of the United States. In 1830, 90 percent of the U.S. trade was moved by U.S. ships; by 1910 that number had declined to 10 percent (Whitehurst, 1985).

The U.S. maritime industry experienced a brief resurgence during both World Wars, which required large numbers of vessels for sealift that did not exist at the outset of either war. U.S. shipyards excelled at building ships to meet national needs. However, once the conflicts were over, the U.S. government was left with large numbers of merchant-type ships that it no longer needed. In order to get rid of this excess, the government sold off these ships for nominal sums, and U.S. shipping companies got relatively new, modern ships in large quantities. While initially beneficial, U.S. shipping companies had not planned financially for their replacement. As a result, U.S. shipping companies had old, outmoded ships and U.S. shipyards did not receive new orders. This significantly hurt both industries, resulting in the U.S. becoming a relatively minor player in the world commercial maritime arena. Table 3 details the decline of the U.S. maritime fleet since World War II. (Note initial growth due to sale of excess government vessels.)

20th century United States maritime policy should be examined in the larger context, as it compares to that of other nations. By understanding international maritime policy, a better understanding of U.S. policy may come to light.

Year (As of)	Number of ships (Active, Privately Owned)
1946 (01 Oct)	535
1950 (31 Dec)	1050
1960 (01 Oct)	1003
1970 (31 Dec)	793
1980 (31 Dec)	578
1990 (01 Oct)	406
1995 (01 Oct)	322
1999 (01 Jan)	281

Table 3. Decline of U.S. Merchant Fleet since WW II. Source: MARAD, October 1999.

B. GENERAL MARITIME POLICY

1. Maritime Policy Theory

The maritime interests of individual nations are complex due to the varying economic and strategic goals each pursues. Maritime policy must address these complexities in a manner that is environmentally and socially sound, and allows all citizens of a country an equal chance to prosper. International law has long recognized that the sea has always been fundamentally open to all. The 1982 United Nations Convention on the Law of the Sea reaffirms this belief.

The Law of the Sea has two basic principles -- freedom of the sea and sovereignty. The oceans of the world are open to all outside of recognized territorial claims. Within a country's territorial claim, that country has the right to impose rules and regulations as it deems appropriate. These principles, coupled with the need for legal

certainty, were the basis for the evolution of the system of ship registration. Ship registration ties ships to the flag of a particular nation. The nation then becomes responsible for that ship and controls the ship through the policies it enacts. These policies have the responsibility of upholding the principles of the Law of the Sea. (European Parliament, 1999)

2. Purpose Of Maritime Policy

For maritime nations that participate in international trade, maritime policy is an important component of those countries' overall trade policy, as a "nation benefits when its shipping participates in its national trade" (Frankel, 1987). Governments develop maritime policy to accomplish a number of goals. These goals include support of the nation's maritime industries (shipping and shipbuilding), environmental and safety concerns, national defense and economic well being. These goals are not always in concurrence and policy makers must "weigh different interests affecting shipping policy" and choose those which serve the greatest good of the nation (Frankel, 1987). The appropriate balance must be found "based on diverse political and national objectives" (Frankel, 1987).

While countries want to increase their economic prosperity through trade and thus encourage shipping, they also want to ensure that their own maritime industries are competitive. They usually accomplish this through protectionist and/or discriminatory policy. These policies can include subsidies, tax rebates, requirements that government goods move by national shipping, reservation of goods to national shipping and right of

first refusal to national shipping. Today, while many countries claim they want and support free competition in shipping, this idea is now "largely theoretical as more and more countries adopt restrictive shipping practices" (Frankel, 1987). Individual countries develop maritime policy that is in their own best interest; however, they must also be aware of the international nature of the industry as "shipping policy cannot be introduced in isolation" (Frankel, 1987).

3. Policy Development Factors

In developing a maritime policy, nations must consider which issues they seek to control. There are six fundamental issues that should be addressed:

- 1) *Policing*. A government's pursuit of goals in the public interest;
- 2) *Rationalization*. A government's attempt to assure efficient use of resources;
- 3) *Standard Setting*. Rules to maintain service, quality, environmental, and other standards;
- 4) *Interest Representation*. Regulations which monitor participation of representative suppliers of shipping capacity or users.
- 5) *Economic*. Measures to maximize the perceived economic need of a country;
- 6) *Defense*. Goals which affect availability and control of adequate shipping capacity to meet defense needs. (Frankel, 1987)

The policies that countries derive from these issues then affect who may or who wants to register ships in that specific country. In choosing a flag, ship owners must consider four areas of consequence.

- 1) How tax, business and finance laws affect the economics of the business.
- 2) Compliance with maritime safety conventions.
- 3) Crewing and terms of employment.
- 4) Naval protection. (Stopford, 1997)

There are two types of ship registries, national and open. In a national registry, the shipping company is treated like any other type of business within the nation. With an open registry the aim is to offer favorable terms to attract international shipping firms. An indication to whether a registry is open or national is the number of domestic shipping firms registered. Lack of domestic shipping firms probably means an open registry. An open registry is characterized by several elements: lack of taxes, crewing requirements that are not country specific and meet only the minimum international requirements, company law that is free from regulation and safety requirements with different levels of enforcement.

A flag state has the primary legal authority to govern the activities of a merchant ship in its operations throughout the world (Stopford, 1997). The 1982 United Nations Convention on the Law of the Sea provides for the right of any [nation] state to register ships if there is a "genuine link" between ship and state. Ships are registered so that they

may move from port to port without undue difficulty. To accomplish this they must have a nationality to identify the ship for legal and commercial reasons.

4. Impact On The U.S. Maritime Industry

The decline of the U.S. flag maritime industry can be traced to two broad forces, foreign competition and technological change (Donn, 1988). Foreign competition has principally taken the form of open registries. Open registries began shortly after World War II and significantly altered the face of international shipping. Owners no longer felt obligated to tie their ship's flag to their country of ownership. In many cases it was much less expense to flag their ship in other countries that offered significant economic advantages. American owners could avoid U.S. crews, which were some of the highest paid in the world, as well as taxes (50 percent) imposed for making repairs overseas on U.S.-flag vessels. Also, foreign flag vessels entering U.S. waters are subject to less stringent Coast Guard inspection criteria than U.S. registered vessels. Table 4 shows the history of U.S.-flag transition to open registry countries.

However, open registries are not the only cause for the decline in size of the U.S. maritime industries. Some decline would have occurred naturally as technological changes occurred, and the increased size and capacity of ships meant fewer ships were needed to meet demand. The development of containerization as a method of cargo movement allowed for a revolution in cargo handling. These technological changes together had a significant impact on the maritime industry.

Period	Countries	Reason
Napoleonic Wars	US to Portugal	Avoid British capture
1922	US to Panama	Avoid alcohol laws
1920-1930	US to Panama	Cheaper labor
1939-1941	US to Panama	Avoid Neutrality Act (encouraged by U.S. gov't)
1946-1949	US to Panama	Post WW II, former gov't ships, lower costs
1949	Liberia	Introduced low registration fees, no taxes, few operating and crew restrictions
1950 to Present	Various	Rise of "Flags of Convenience"

Table 4. U.S. History of Open Registry. Source: Stopford, 1997.

C. 20TH CENTURY U.S. MARITIME POLICY

Maritime policy established by the U.S. government beginning in the early 1900's has in part been designed to correct the boom-bust cycles that characterize the history of the U.S. maritime industry. U.S. maritime policy can be categorized into three broad areas:

1. Protectionism. This includes cabotage, preference and reservation.
2. Subsidies. This includes construction loan guarantees and operating differential subsidies.
3. Regulation. This include shipping conferences (legal cartels) established by the Shipping Act of 1916.

One of the long-standing rationales behind U.S. maritime policy has been the belief that a strong commercial maritime industry is needed to support national defense. There are two underlying philosophies behind this policy. First, the U.S. cannot and

should not rely on foreign flag ships during times of crisis. Second, the U.S. Navy should not maintain a large cargo fleet. The steady decline of the U.S. maritime industry means these policies have not been effective. In fact during the Gulf War only six U.S.-flag ships entered the war zone (Fox and Lawrence, 1997).

The earliest U.S. laws promoted the maritime industry and allowed it to prosper in the international market. These laws were in keeping with the laws of other countries around the world, most notably Great Britain, then the world maritime leader. In the 1800s, the British began to realize their laws had become protective in nature and that the cost outweighed the value of the laws. The U.S. failed to follow suit when Britain changed its laws and U.S. laws originally designed to promote open competition became laws of protection.

1. Federal Legislation

The primary means by which the U.S. creates and maintains maritime policy is through legislation. The purpose of maritime policy and its supporting legislation is to ensure the national, economic and military security of the U.S. Contemporary U.S. maritime policy is rooted in laws enacted in the early 1900s. As the United States entered the 20th century, its maritime industry was in dire straits. In 1909, U.S. vessels carried only a fraction of the cargo they did in 1830 (Whitehurst, 1985). World War I clearly demonstrated the need to be able to move large quantities of troops, equipment and materials by sea. The U.S. economy and national security required a strong merchant

marine. Section 1 of the Merchant Marine Act of 1920 (MMA 1920) states (*italics added*):

That it is necessary for the national defense and for the proper growth of its *foreign* and domestic commerce that the United States shall have a merchant marine of the best equipped and most suitable types of vessels sufficient to carry the greater portion of its commerce and serve as a naval or military auxiliary in time of war or national emergency, ultimately to be owned by citizens of the United States; and it is hereby declared to be the *policy of the United States to do whatever may be necessary to develop and encourage the maintenance of such a merchant marine.*

MMA 1920 is the first significant maritime legislation of the 20th century. Section 27, known as the Jones Act, is the cornerstone for domestic waterborne shipping (cabotage). Cabotage is the term used to denote a law or set of laws that govern the transportation of cargo and passengers between two or more ports within the same country. In the U.S., cabotage law requires any vessel conducting commercial activities (transportation, fishing, salvage, towing, etc.) between two U.S. ports (including territories) or along the U.S. coast (within territorial waters) to be built in the U.S., and manned and owned by U.S. citizens. The rationale for these laws is that a strong domestic maritime industry will contribute to a strong U.S. international maritime industry. The U.S. is the only country to use cabotage. Many other nations, including major U.S. trading partners, employ similar laws to regulate coastal shipping.

a. Subsidies

Perhaps the greatest impediment to a successful U.S. maritime industry has been the wage and price differences associated with building and operating vessels in

the U.S. vice most other nations of the world. In the mid-1800s, the U.S. shipbuilding industry was slow to shift from wood to steel construction. This began the slow developing inability to compete in the world shipbuilding market. U.S. labor costs were higher than those in Europe and later Asia. U.S. shipping companies had to pay more for U.S.-built ships and thus charge more for service. The only exceptions were following the World Wars when the U.S. government sold excess vessels at very low prices. However, as previously noted, once these vessels became obsolete, new U.S.-built ships had a high cost.

The Merchant Marine Act of 1936 (MMA 1936) has evolved into the cornerstone of 20th century U.S. maritime policy. This act reaffirms the link between a strong merchant marine and national defense. One of the more significant features of the MMA 1936 is the creation of Operating Differential Subsidies (ODS). Subsidies were determined to be the best way to make up some of the differences in cost and wages associated with operating a U.S.-flag vessel. The ODS paid ship owners the difference in cost associated with flagging a ship in the U.S. vice another country. These subsidies lasted until they were replaced by a new formula under the Maritime Security Act of 1996 (MSA 1996).

MSA 1996 contained significant amendments to the Merchant Marine Act of 1936. The MSA eliminated the ODS program. ODS contracts in place were allowed to expire, though efforts to buy them out were initiated. In place of ODS, a new subsidy program, the Maritime Security Program (MSP), was developed. This program provides

fixed payments (\$2.1 million per year) to owners of U.S.-flagged ships that participate in the MSP. The MSP also authorizes an "emergency preparedness program" that allows owners of U.S.-flag ships to enter into an agreement to support U.S. national security needs in return for guaranteed cargo. This program, the Voluntary Intermodal Sealift Agreement (VISA), is modeled after the Civil Reserve Air Fleet (CRAF) program created in 1952. Vessel owners must participate in VISA if they want to receive the MSP annual payment. (For a detailed discussion of MSA 1996, see Kott, 1997).

b. Preferences

The United States, like many other nations, participates in the practice of cargo preference. This policy "reserves certain government-impelled, ocean cargo for U.S.-citizen owned and crewed vessels" (MARAD, 1998a). Specific preferences include:

1. Cargo Preference Act of 1904. All items procured for, or owned by, U.S. military departments and defense agencies
2. Cargo Preference Act of 1954 (as amended). This legislation requires that 50 percent of gross tonnage of government owned cargo and 75 percent of certain agricultural cargoes be carried on U.S.-flag vessels.
3. Public Resolution 17 (73rd Congress). This resolution states that all cargo generated by Export-Import Bank programs must be shipped on U.S.-flag vessels. Recipient nations can get waivers to ship up to 50 percent of the cargo on vessels of their nation.
4. Public Law 104-58 (and other laws governing oil tanker movements). Alaskan North Slope crude oil can be exported only if transported on U.S. flag tankers.

The General Accounting Office and DOD have concluded that if cargo preference policy did not exist, most of the existing U.S.-flag fleet would reflag under a foreign registry (MARAD, 1998a).

D. NATIONAL SECURITY SEALIFT POLICY

The decline of the U.S. maritime industry is of concern to DoD. In 1989, the National Security Council issued the National Security Sealift Policy (NSSP), which states:

Sealift is essential both to executing this country's forward defense strategy and to maintaining a wartime economy. The United States' national sealift objective is to ensure that sufficient military and civil maritime resources will be available to meet defense deployment and essential economic requirements in support of our national security strategy. (NSC, 1989)

To accomplish this policy, the NSSP provides six guidelines.

1. The U.S.-owned commercial ocean carrier industry, to the extent possible, will be relied upon to provide sealift in peace, crisis, and war.
2. The U.S. must be prepared to respond unilaterally to security threats. Sufficient U.S.-owned sealift resources must be available to act unilaterally.
3. In addition to the U.S.-flag fleet, the U.S. will continue to rely on U.S.-owned and allied resources to meet the commitments of our established alliances.
4. DoD will determine its total sealift requirements, while DoT assesses and works to ensure the maritime industry's ability to meet the requirement.
5. The Department of State, DoT and other appropriate agencies will ensure international agreements and federal policies related to the maritime industry do not unduly harm U.S. interests.

6. New sealift and supporting programs will be developed with costs in mind and compete with other national security programs. (NSC, 1989)

National security policy statements are reserved for those topics that are deemed to be crucial to the nation. The NSSP is recognition that sealift is critical to the U.S. national security plan. In creating a specific policy at this level, there is also recognition that existing maritime policy and related legislation have failed to meet the nation's needs.

It is interesting to note that the NSSP makes continued use of the term U.S.-owned vice U.S.-flagged. This subtle difference may signal a call for fundamental changes to maritime policy. MSA 1996 is, to date, the only new significant maritime legislation to become law since the publication of NSSP. MSA 1996 stabilizes the industry rather than promote its growth. The issue does continue to receive increased recognition and discussion.

E. EFFECTIVE U.S. CONTROL

There is a significant distinction between U.S.-flagged and U.S.-owned ships. U.S.-flagged vessels must be U.S.-built, U.S.-owned and U.S.-manned and meet all U.S. safety and environmental laws. U.S.-owned ships may be registered in countries other than the U.S. The registry for such ships is usually in a country that offers a "flag of convenience" (FOC), which results in significantly reduced operating costs through minimal taxes, less stringent safety standards and no restrictions on place of construction or nationality of crew. Many countries offer this service as a way to earn income.

U.S.-owned ships registered in Liberia, Panama, Honduras, The Bahamas, and the Marshall Islands are considered to be under "effective U.S. control" (EUSC). This means that the ship owners receive the benefits of flying a FOC in return for which, they agree that in time of national emergencies, the United States can call upon their ships. These FOC countries essentially cede control of U.S.-owned vessels to the United States, which facilitates requisitioning by the U.S. during national emergencies.

The doctrine of effective U.S. control was first formulated by Secretary of Defense McNamara and later reaffirmed by Secretary of Defense Weinberger through a written agreement with the government of The Bahamas (Vail, 1993). The idea of the EUSC agreements was born from the implicit endorsement by the U.S. Government of reflagging by U.S. ship owners with the countries of Liberia and Panama. The doctrine has evolved to the point where countries must now apply to the United States (DOD) for inclusion in the EUSC.

In January 2000 there were approximately 175 EUSC ships (MSC, 2000). While this number represents growth over the previous five years, the program has been declining (Lovett, 1996). The recent sale of several U.S. shipping lines to foreign companies may have a large impact on the EUSC fleet. In 1997 American President Lines (APL) was sold to Neptune Orient Lines (NOL) of Singapore and in 1999 Maersk bought Sea-Land (Damas, 1999). APL and Sea-Land both had a number of ships flagged in EUSC countries.

F. EFFECTS OF LEGISLATION

The U.S.-flag fleet has continued to decline despite the sustained efforts of the government. As Kilgour noted in 1975,

The failure of the U.S. merchant marine occurred despite decades of governmental effort to support and protect the industry and the expenditure of billions of dollars in direct and indirect subsidy. Moreover, it occurred against a background of enormous expansion in international trade, impressive growth in the fleets of other nations, and a technological revolution that should have been to the relative advantage of a high-wage country such as the United States. (1975)

A quarter century later, international trade has continued to expand and the technological revolution has no end in sight. The U.S. maritime industry continues to operate in an environment of legislation that is 50-75 years old.

The U.S. maritime industry has come to rely on protective legislation. In 2000, U.S. policy is at odds with the policies of most other countries. For example:

- U.S. cabotage rules require domestic built vessels, while other countries allow foreign built vessels even for the domestic service.
- U.S. legislation requires a three-year wait before foreign built vessels, which reflag (to U.S.), can carry preference cargo.
- Owners of U.S.-flagged vessels must pay a penalty for non-emergency ship repairs conducted overseas.
- U.S. labor laws do not allow efficient use of personnel, e.g., minimum manning requirements exceed those of FOC vessels.
- U.S. vessel owners and merchant mariners pay U.S. income tax regardless of where the income was earned. This is not the case in other countries.
- U.S. ship owners must receive government approval to transfer U.S.-flag ships to foreign flag registries. This impinges on their rights of private property.

- Foreign flag ships need to meet only international standards to enter U.S. waters but U.S. flag ships are held to higher standards. (Gibson, 1998)

The current shortcomings of U.S. maritime policy raise serious concern about the ability of the U.S. commercial maritime industry to meet the needs of the nation's national security requirements. While these shortcomings have been recognized, there has been only moderate effort to fully address the issue.

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IV. RISK AND STRATEGIC SEALIFT

A. INTRODUCTION

As developed in chapters two and three, there are two significant concerns related to strategic sealift that the DoD must address as it enters the 21st century. First, the need for sealift is significant and will likely increase as the U.S. continues to intervene in conflicts around the globe, while the majority of its forces are based in CONUS. Second, the size of the U.S. merchant fleet continues to decline despite the various efforts of the government.

The decline of the U.S.-flag shipping industry is of concern because national policy, as discussed in chapter three, places primary responsibility on the U.S. commercial maritime industry to provide required strategic sealift. In view of increasing needs for sealift, a secure and reliable supply of vessels must be available to the DoD at all times to meet the U.S. National Security Strategy. DoD must develop a means to address the risks associated with an inadequate supply of U.S.-flag vessels, its implications and alternative solutions.

The risk assessment necessary to analyze this issue is complicated by the fact that the actual requirements are not clearly defined. While there are many war plans and studies such as MRS BURU attempting to identify lift requirements, the focus is on initial or surge requirements. Sustainment sealift requirements are given brief mention. Additionally, the spectrum of potential types of conflicts and the resulting needs for

sealift are broad. The spectrum ranges from peacetime routine movements and exercises to major regional conflicts on the scale of Desert Shield/Desert Storm. This assessment process is further complicated by the inability to predict whether a conflict will be a unilateral operation by the U.S. or a multi-lateral operation conducted by a coalition.

The goal of U.S. military strategy when resolving conflicts around the globe is to conduct operations as part of a coalition or multi-national force. This strategy was effective in World War II, the Gulf War, and in the Bosnia and Kosovo operations. The reasons for this strategy are both political and economic. Among the many benefits of this approach is access to maritime assets of the partner nations. As an example, during Desert Shield/Desert Storm, Japan and Germany provided several ships free of charge in lieu of troops. For Japan, this was a means of supporting the effort without violating its constitution (Matthews and Holt, 1996). The North Atlantic Treaty Organization (NATO) also provides for member nations to cooperate on logistic support (NATO, 1997). Should a conflict arise on the Korean peninsula, South Korea has pledged a number of its flagged vessels to support those operations (Coppock and Tully, 1999).

With the general need for sealift identified and in spite of the uncertainty regarding requirements, the U.S. must ensure access to adequate strategic sealift resources. Potential sources must be identified and the risk associated with each source assessed. There are, in fact, many sources of sealift that already exist or could be developed from which the DoD can meet its requirements.

1. DoD could build and operate its own strategic sealift fleet capable of providing both surge and sustainment sealift.
2. DoD could continue its primary utilization of the U.S.-flag commercial fleet and support efforts to enhance it, including the possibility of the creation of a second national registry.
3. DoD could rely on the world maritime industry.
4. DoD could develop a method to meet its requirements that incorporates the previous three options.

Risk is inherent in all policy endeavors, including strategic sealift. In planning, the degree of acceptable risk must first be determined. In order for DoD to choose the appropriate option, a means of addressing the risks associated with each option must be developed. The following sections will present a discussion of the first three options. The fourth option draws on the first three and will not be specifically addressed. The discussions will look at potential risk factors, their impact on strategic sealift and offer supporting data.

B. DEVELOP A DOD OWNED STRATEGIC SEALIFT FLEET

The first option is for the DoD to build and operate its own strategic sealift fleet. This option was briefly discussed in chapter two and has in fact been partially adopted by the DoD. In order to meet surge sealift requirements, MSC and MARAD maintain and operate a fleet of sealift vessels to quickly move forces on short notice.

While this may be an appropriate option for surge sealift, the risks associated with

this option pertaining to sustainment sealift are greater. While a DoD sustainment sealift fleet would ensure that vessels are available at all times, the size of this fleet would be difficult to determine. The problem DoD faces is determining how many and what type of vessels would be needed in an organic fleet. The risk lies with the funding issue. If this option is chosen and adequate funding is not received, DoD will be without needed sustainment sealift. On the other hand, if funding is received but the wrong number of ships is chosen, DoD potentially still has a sealift problem. This risk can be minimized by the selection of the fourth option, a combination of the alternative solutions.

Additionally, if an organic fleet is built, questions of what to do with the ships when not required for military operations arise. Are they placed in a reduced operating status? Are they chartered out for commercial use? Where do the crews come from?

C. CONTINUE UTILIZATION OF THE U.S. COMMERCIAL MARITIME FLEET

U.S. policy is to utilize U.S.-flag ships as the primary means of providing sealift. DoD policy states that "DoD cargo shall be transported by sea only in vessels of the United States, or belonging to the United States, except in accordance with the terms of an applicable treaty or when U.S.-flag ships are not available to meet the requirements of the cargo or when rates charged are excessive or otherwise unreasonable under the Federal Acquisition Regulations" (DoD Directive 4500.9).

As detailed in chapter three, the U.S. commercial maritime industry has been in decline for the last 50 years and there are no indications that the future will be any

different. This decline has led to one of the primary risks associated with the use of U.S.-flag ships, that there may not be ample U.S.-flag ships to meet the requirements in the future. The Maritime Security Act of 1996, with its MSP and VISA programs, was implemented in part to shore up the U.S.-flag industry. Both programs were implemented to aid U.S.-flag vessel owners by providing operating subsidies, priority access to preference cargo, and to develop a partnership for planning and conducting operations during a national emergency. MSP and VISA were designed to minimize risk by strengthening U.S. carriers and reducing the need for foreign flag carriers.

VISA is a program based on capacity, not particular ships. U.S. shipping companies are enrolled based on capacity they can provide related to the ships they own. If VISA is activated, participating firms are not required to provide U.S.-flag ships. They must only provide ships that meet their enrollment capacity. The idea behind this is to allow U.S.-flag ships to continue their regular routes so the company does not suffer financially. The possibility exists that all the ships carrying the cargo would be foreign flag.

This funding is intended to offset the difference in operating costs between U.S. and foreign flag registry. The current number of ships that can be enrolled is 47 (American Shipper, 1999). The number of participants is not based on known requirements, but rather on a congressional authorization. Congress authorized \$100 million per year for the program and directed that each ship receive \$2.1 million. The result is that 47 ships receive the subsidy (Kaskin, 1999).

In its continuing efforts to support and bolster the U.S. maritime industry, several pieces of maritime legislation have been introduced in the 106th (1999-2000) U.S.

Congress. The specific bills are:

- H.R. 2159 – United States-Flag Merchant Marine Revitalization Act of 1999
- H.R. 3225 – National Security Sealift Enhancement Act of 1999
- S. 1858 – National Security Sealift Enhancement Act of 1999

These bills would make income from vessels non-taxable, allow foreign built ships to be flagged, exempt U.S. crew wages below \$80,000 from taxes, and remove the 50 percent tax on foreign repairs (Marine Log, September 1999). Appendix A provides a summary and status of these bills. These three bills would, in effect, create a second U.S. national registry.

The idea of a second national registry is not without precedent. Several traditional maritime nations have implemented such a registry program as means to strengthen their national maritime industry. Germany, Great Britain, Norway and Denmark have experienced the same type of ship registry movement to FOC countries and have established second registries. These second registries attempt to capture the benefits offered by the FOC countries, with a focus on minimizing taxes, crew costs and manning requirements (Sletmo and Holste, 1993). “The evolution of second registries has been interpreted as the policy response of those traditional maritime countries that restructured their maritime fleets in response to the contemporary realities [*low cost foreign labor*] of the shipping world” (Shashikumar, 1994).

Norway offers an example of how a second registry operates. Norway's success is demonstrated by its number eight ranking among major merchant fleets (Table 6). In 1987, Norway overhauled its maritime policy in light of dramatic reductions in the size of the Norwegian fleet. The cornerstone of this new policy was the creation of the Norwegian International Ship (NIS) registry.

The major features of the NIS registry are:

1. An absence of nationality requirements with respect to crew and equity capital.
2. The freedom to negotiate wages and other conditions of employment with any representative union regardless of nationality.
3. The freedom to be incorporated outside of Norway provided there is an owner's representative in Norway and part of the operating function is located in Norway.
4. Low registration fees.
5. Non-taxation of foreign owners.
6. Liberalization of currency requirements and regulations (Shashikumar, 1994).

Additionally, in order to encourage the use of Norwegian crews, the government imposes a reduced income tax for sailors and pays 50 percent of the cost for Norwegian sailors, who have spent six months at sea, to return home (Shashikumar, 1994).

A successful second national registry requires more than just financial compromises; there must also be an appropriate 'shipping milieu.' This shipping milieu requires a base of competent people working in all areas of the maritime industry. The

requirements range from generalists in insurance and financing to shipbuilding and consulting, and specialists such as seafarers, agents and technical experts. These people most work together as a coherent community focused on a healthy maritime industry (Sletmo and Holste, 1993).

A shipping milieu cannot be created over short period but rather requires generations to evolve. The risk the U.S. faces with this option is coming to rely on a second registry as a source of strategic sealift when the appropriate shipping milieu may not exist in the U.S.

For countries to develop a successful second registry, they must:

- Foster an atmosphere that will create a desire by companies to operate in that country.
- Ensure the participation and cooperation of labor unions.
- Create a favorable economic environment.
- Design it to attract both national and foreign owners. (Sletmo and Holste, 1993)

The inability of the U.S. to create an appropriate shipping milieu may be reflected by recent changes of ownership that have occurred involving the leading U.S. maritime companies. In the past five years, foreign firms have purchased most of the major U.S. shipping companies. Maersk bought SeaLand, Neptune Orient Lines bought American President Lines and Canadian Pacific bought Lykes Lines.

1. Foreign Ownership Of U.S.-Flag Vessels

The non-U.S. control of U.S.-flag vessels is another area that must be addressed in

a risk assessment. The new Maersk SeaLand Company headquartered in Denmark owns (controls) the largest number of U.S.-flag ships in the entire U.S. fleet. Maersk SeaLand and the other owners of U.S.-flag ships have set up independent U.S. companies in order to meet ownership requirements. In 2000, 31 of the 47 ships enrolled in the MSP, while legally owned and operated by U.S. entities, are in effect controlled by foreign lines (American Shipper, September 1999).

Although these firms have pledged to honor the MSP and VISA programs, there is still risk. The parent firms could decide not to honor their pledges. The risk then lies with the ability of the U.S. government to exercise sovereign control over the U.S. entities which own and operate the ships. If the government is unable to exercise control, a significant amount of sealift capacity could be lost. The sale of U.S. shipping lines to foreign companies is in keeping with the general trends being seen in the world maritime industry.

D. THE WORLD MARITIME INDUSTRY

While there are certainly risks associated with a reliance on a DoD owned fleet or the U.S. commercial industry to provide sealift capacity, the greatest risk would appear to lie with the use of foreign flag ships. In reality, however, this may not necessarily be the case.

For example, during the Persian Gulf War, many foreign flag ships were used by DoD to provide sealift. This was done because U.S.-flag carriers could not provide the capacity required by DoD. By the end of the war, 177 foreign flag ships had been

chartered; of this number only 13 either initially hesitated or subsequently refused to provide service (Matthews and Holt, 1996). The primary reasons cited for these actions were based on political and religious ideology, pay disputes, or fear of entering a combat zone (Matthews and Holt, 1996). The majority of these cases were quickly resolved and resulted in no significant impact on operations.

The significant question associated with use of foreign flag vessels is determining the level of acceptable risk. One aspect of risk assessment is the issue of unilateral vice multi-lateral or coalition operations. "History has repeatedly shown that allies – even close ones – remain allies only when it is in their political interest" (Quartel, 1997). Risk is significantly reduced within a coalition as member nations can persuade or even force their nations' flag carriers to participate.

Unilateral operations are potentially of the greatest concern and pose the greatest risk. Foreign governments may prevent their flag ships from providing sealift to the U.S. Without these foreign flag vessels, the U.S. may not be able to conduct the desired operations. There are a number of factors that may be considered in a risk assessment of foreign flag usage, ranging from cost and reliability to political and religious issues. Most of these issues can be mitigated due to large number of vessels and diversity of owners found in the global maritime industry.

One potential technique to help in the assessment of the risk of using foreign flag vessels is through a decision chain adapted from Theodore Moran (Figure 1) (Moran, 1993). To start, it is necessary to look at the size of the world market. Are there few

suppliers or are there many? In the case of the world maritime industry, this supply consists of the number of countries with vessels engaged in foreign trade and the number of vessels each country had. The size of the world ocean going fleet in 1997 was over 25,000 vessels, broken down as follows: 35.1 percent oil tankers, 33.6 percent bulk carriers, 13.4 percent general cargo, 7.2 percent container ships and the remaining 8.1 percent miscellaneous types (UNCTAD, 1998).

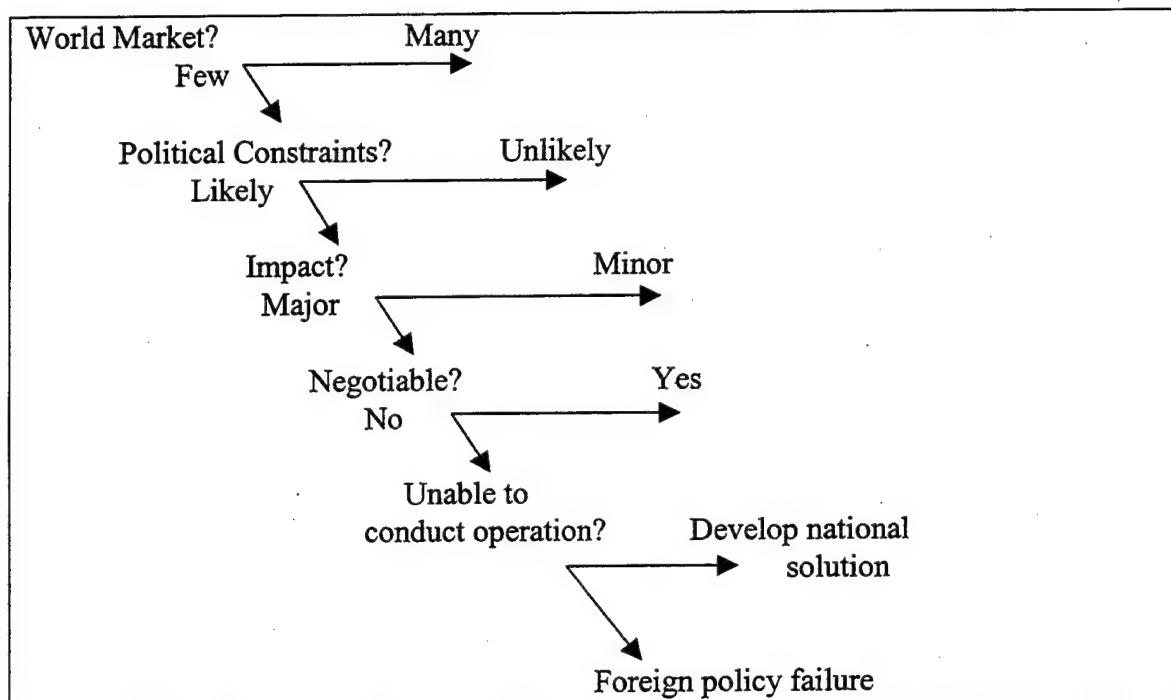


Figure 1. Risk Assessment Decision Chain. Adapted from Moran, 1993.

If the world supply of ships was few in number then the U.S. might have to contend with countries imposing restrictions on their vessels based on politics or other factors, further impacting the size of the supply. With a large supply of ships, the potential for the entire market to be blocked by countries opposing the U.S. operations is reduced (Moran, 1993). FOC countries, with a significant portion of the world fleet, have

little ability or desire to impose their will on vessels registered with them.

If the range is few and the possibility for political or other constraints exists, the question is whether the impact is major or minor. If the impact is deemed major, is the issue negotiable? Offering war insurance or escort service may appease major concerns. The inability to overcome major issues could, in the worst case, cause an operation to be curtailed or significantly scaled back. The inability to conduct an operation could force a national solution (at great expense) such as building ships, which requires long lead-times. In the worst case, the result would be foreign policy failure.

In order to begin to assess the risk associated with the use of foreign flag ships to support U.S. military operations, it is important to examine the world maritime industry. The world maritime industry has evolved over the last 50 years to the point where the flag state, the nation in which the ship is registered, is more important than the homeport state. The homeport state is generally where the corporate offices of the vessel's owner are located. The reason for this difference is based largely on economics. The cost of operating a vessel is less in the flag state than in the homeport state. This shift in control is one of the primary reasons for the creation and growth of the "flag of convenience" concept.

The importance of the FOC or open registry countries is illustrated when the major merchant fleets of the world are ranked. Table 5 lists, by deadweight of ships registered, the top 15 merchant fleets of the world. It should be noted the U.S. ranking is based on inclusion of ships that are inactive. While it is not known whether other

countries also list inactive ships, if the U.S. ranking was based only on active ships (Table 3), it would not be included on this list. Table 6 identifies the top seven open registry fleets in the world as of 31 December 1997 ranked by total registered deadweight tonnage.

The significant point is that five of the top six merchant fleets in the world are located in FOC nations (MARAD, 1998 and UNCTAD, 1998). Open registry countries, with over 50 percent of the world fleet (UNCTAD, 1998), have little ability or desire to impose their will on vessels registered with them. With a large supply of low risk ships, the potential for the entire market to be blocked by countries opposing the U.S. operations is reduced (Moran, 1993).

1. Panama	9. China
2. Liberia	10. Japan
3. Greece	11. United States
4. Malta	12. Philippines
5. The Bahamas	13. St. Vincent
6. Cyprus	14. Marshall Islands
7. Singapore	15. India
8. Norway (Norwegian International Ship (NIS) registry)	

Table 5. Major Merchant Fleets of the World: 30 September 1998 (Ranked by total deadweight tons). Source: MARAD, 1999.

1. Panama	5. Malta
2. Liberia	6. Bermuda
3. Cyprus	7. Vanuatu
4. The Bahamas	

Table 6. Major Open-Registry Fleets: 31 December 1997 (Ranked by total deadweight tons registered). Source: UNCTAD, 1998.

This shift from homeport dominance to flag state dominance has important implications for the U.S. in regards to the risk associated with the use of foreign flag

ships. The FOC countries, whose registries continue to grow, do not in general have great world political power and do not become involved in the world's conflicts. The registration revenue FOC nations receive account for a significant portion of their annual income. Therefore they are unlikely to dictate to ship owners how and with whom they can do business, as switching registries can be done with relative ease. As most owners are more concerned with economics rather than politics, they will sail for those who pay. This concept would appear to reduce the risk of use by the U.S.

E. U.S. EXPERIENCE WITH FOREIGN FLAG VESSELS

The U.S. has made extensive use of foreign flag carriers in both peacetime and during times of conflict. The Persian Gulf War in 1990-1991 clearly demonstrated the importance of sealift and the reliability of foreign flag carriers. Between 7 Aug 1990 and 10 March 1991, sealift moved just over 94 percent of all cargo (including POL) required for Operation Desert Shield/Desert Storm (Matthews and Holt, 1996). DoD owned or controlled vessels moved 48 percent of the total sea-born cargo, U.S. commercial vessels moved 31 percent and foreign flag vessels moved 21 percent (Ladd, 1996). Table 7 provides a breakdown by flag, of unit equipment and ammunition shipped during the Gulf War (POL is not included).

At the start of the Gulf War, MSC issued a world wide Request for Proposal (RFP) to solicit vessels. As a result of the RFP, 32 U.S.-flag ships (all that responded) were chartered. When the U.S.-flag market was fully utilized, foreign flag ships were hired. By 1 April 1991, 177 foreign flag ships from 34 nations were in use (Matthews

and Holt, 1996). While 13 of these foreign flag ships raised concerns about their mission, all but one completed its contract (Matthews and Holt, 1996). Of these 177 ships, 78 were open registry vessels and all completed their contract (Matthews and Holt, 1996). This demonstrates the low risk associated with this class of ship.

Unit Equipment		Ammunition	
U.S.-flag	12.7 percent	<u>DELIVERED</u>	
Foreign flag	26.6 percent	RRF	17 loads
U.S. military	60.7 percent	U.S.-flag (incl. Prepo)	14 loads
(RRF, MPS, Prepo, FSS)		Foreign flag	17 loads
		<u>EN ROUTE (not delivered)*</u>	
		RRF	16 loads
		U.S.-flag (incl. Prepo)	12 loads
		Foreign flag	27 loads

Table 7. Unit Equipment/Ammunition Shipped During the Gulf War thru 10 March 1991 by Flag. Source: Matthews and Holt, 1996. * En route at conclusion of war, turned around and returned to CONUS.

The Gulf War was not the only time foreign flag ships have been used to move DoD cargo. In fact, despite regular efforts to put U.S. government and DoD cargo on U.S.-flag ships, significant quantities are routinely moved by foreign flag ships. MSC, the DoD agent for charter sealift, and MTMC, responsible for shipments on scheduled services, use foreign flag vessels on a routine basis because U.S.-flag ships are "not available to meet the requirements" (DoD Directive 4500.9). During fiscal years 1997-1999, MSC issued 28 percent (49 of 175) of its contracts for dry cargo and 64 percent (75 of 117) of its tanker contracts to foreign flag vessels. Items carried ranged from ammunition and construction equipment to containers and boats (MSC, 2000a). MTMC only began collecting data on foreign flag usage in December 1999. For the period 1 December 1999 to 8 February 2000, 94 percent of MTMC cargo was shipped on U.S.-

flag vessels, 4 percent was moved on foreign flag vessels and 2 percent was shipped by means of both U.S. and foreign flag vessels (MTMC, 2000).

Specific examples of MSC chartering foreign flag vessels include heavy lift vessels from Dockwise, a Dutch company. This company moved the frigate USS Samuel B. Roberts from the Persian Gulf to the U.S. after it was damaged by an Iranian mine. Dockwise has also moved U.S. mine sweeping vessels from the United States to the Persian Gulf (Dockwise, 2000). In November 1999, the M/V Balakleya moved U.S. Army equipment from Germany to Greece. This Russian RO/RO was originally built to transport Soviet Army equipment (Baxter and de Jong, 1999).

DoD has used and in fact must use foreign flag vessels to meet its operational requirements in both times of peace and times of conflict. In the vast majority of the instances where foreign flag ships have been used, performance has been acceptable and reliable. As the Moran model suggests, risk associated with the use of foreign flag ships is quite low.

F. 21ST CENTURY CHALLENGES

The preceding discussion has identified the principal sources of sealift available to support DoD operations. While several risk factors have been addressed, these factors are only a few of the many that exist. The critical process is identifying the right factors and creating a mechanism to adequately assess them. Ownership is the major complicating issue. The global maritime industry is unique, with ships registered in one country, the

owners located in a different country and the crews from one or more countries.

Even within the U.S., the issue of ownership is far from clear. Foreign companies control a significant number of U.S.-flagged, militarily useful commercial vessels through operating entities, receive operating subsidies for those ships and pledge to provide them during times of crisis. On the other hand, numerous U.S. companies own and operate vessels that are registered in other countries. The EUSC program is the principal means by which these ships become available during times of crisis.

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V. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

Sealift is and will continue to be of critical importance to the DoD in its mission of supporting national security requirements. The source of the sealift is the issue. Surge sealift requirements appear to have been satisfied through the significant and costly acquisition of organic vessels in the 1990's. However, surge sealift is only part of the total sealift picture. Sustainment sealift, the other part of the equation, has not been adequately addressed. This failure is due in part to the difficulty in clearly identifying sustainment requirements associated with a wide range of variability caused by the variety of U.S. military operations.

The U.S. has two options available from which to obtain sustainment sealift: utilize organic ships (option one of chapter four), or rely on the commercial maritime industry, U.S. or foreign (option two and three of chapter four). Since World War II, the U.S. has relied on the maritime industry. A government-owned fleet of sustainment sealift vessels would be costly and the requirements difficult to quantify. In choosing the commercial maritime industry as the primary source of sustainment sealift, MARAD and DoD have focused on the U.S. commercial maritime industry.

The U.S. has attempted to be self-sufficient at the national level with regards to the maritime industry. This is the policy of autarky (autarchy). The reasoning is that sealift is crucial to national defense and therefore it is in the national interest to ensure the

existence of a commercial U.S. maritime industry. The U.S. government has supported the industry through subsidies and cargo preferences in the belief that the industry is essential to the nation. "Essential industries [should] to be given a direct subsidy to enable them to meet foreign competition, with the explicit recognition of the fact that the subsidy is a price paid by the nation in order to maintain the industry for defense purposes." (Britannica, 2000)

Despite over 80 years of policy and regulation (MMA of 1920 et al), the U.S. commercial maritime industry has been unable to become an industry leader. U.S. vessel owners prefer to build and flag their vessels overseas in more economically favorable nations. Existing U.S.-flag ships are aging and not being replaced. As a result, "Other than Maritime Security Act cargo ships, relatively few U.S.-flag vessels are expected to remain in international trade" (Pouch, 1999). This does not bode well for meeting national security plans.

The U.S. is going to have to increase its reliance on foreign flag vessels to meet its sealift requirements in the 21st century and accept the increased risk and reliability issues associated with them. Based on past experience, risk and reliability are not significant issues. The U.S. must accept that the world maritime industry like so many other global industries, is changing.

There are three facts that the U.S. must accept, as it enters the 21st century.

1. Globalization will continue.
2. Reliance on foreign products will grow.

3. No nation can have a comparative advantage in everything. (Moran, 1993)

In recognition of these facts, the U.S. must first find its appropriate place on the spectrum between autarky and efficiency. At one end of the spectrum is autarky, national economic self-sufficiency and independence (Figure 2). This position is expensive and ultimately leads to ruin. At the other end of the spectrum is efficiency, that is globalization, true free market economics. The risk at this end of the spectrum includes the potential for significant national security issues. In 2000, the U.S. finds itself on the left side of the spectrum, though MSA 1996 has moved the U.S. more to the center. The U.S. must conduct a strategic sealift assessment which takes into account the 21st century global maritime industry. Based on this new assessment, the U.S. should strive to move its policy towards the right side of the spectrum.

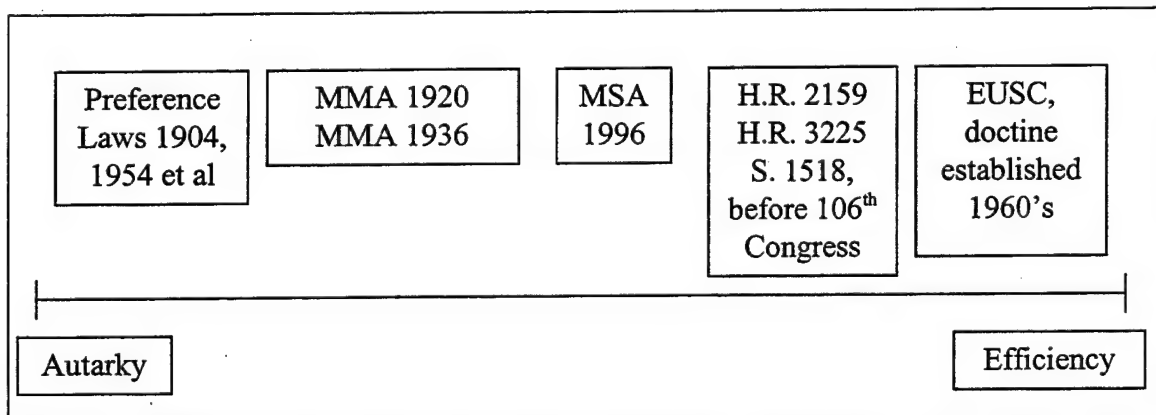


Figure 2. Policy Spectrum. (Placement represents policy relationship to each other, not a quantifiable location on the spectrum.)

The threat from globalization is not so much the extent of dependence but rather from the concentration of dependence on a few suppliers. A method to determine world market concentration is derived from Moran's anti-trust model. The model states that if

the four largest firms in the industry control less than 50 percent of the industry there is no problem of concentration. However, if the four largest firms control more than 50 percent of the industry, there is a concentration. Industry concentration can result in denial of services for a number of reasons (political, religious, etc.) The bottom line is that in the absence of global concentration there is minimal risk associated with dependence upon foreign shipping interests. (Moran, 1993)

This concentration model can be adapted to the world maritime industry as a way to assess the risk to the U.S. of using foreign flag ships to meet strategic sealift needs. While global shipping data is difficult to find, the following example of Moran's model supports the idea that the U.S. can use foreign flag vessels with minimum risk. The top 50 ocean shipping firms moved over 15 million twenty-foot equivalent units (TEU) containers into U.S. ports in 1998. The top four firms, SeaLand, Evergreen Lines, Maersk, and Hanjin Shipping Co. Ltd. accounted for 4,642,251 TEUs (Journal of Commerce, 1999). This represents 30 percent of the total moved. This is considerably less than the 50 percent necessary for a concentrated industry. The model suggests that the U.S. should not have a problem accessing the world maritime industry.

U.S. maritime policy is not in line with the global maritime industry. Rather than encouraging owners to fly the U.S. flag on their ships, U.S. policy actually dissuades them by requiring the use of higher priced U.S. labor to build, operate and maintain U.S.-flag vessels. Additionally, the U.S. collects taxes not charged in other countries and

imposes operating requirements not found in other countries nor required of foreign flag ships to enter U.S. ports.

The continuing decline in the number of U.S.-flag vessels makes it difficult for DoD to find U.S.-flag ships to provide strategic sealift. The lack of U.S.-flag ships requires the DoD to use foreign flag vessels and accept the risk associated with this. This thesis has provided a review of U.S. maritime policy and an introduction to understanding the nature of the risks related to strategic sealift facing the DoD as it enters the 21st century. These risks are not insurmountable. New maritime policy, which addresses the global maritime industry in the 21st century, will further mitigate these risks.

B. RECOMMENDATIONS

1. The Maritime Administration should initiate an overhaul of U.S. maritime law, specifically those laws that deal with international shipping, cargo preference and subsidies. The goal should be to enact legislation that allows the U.S. maritime industry to compete on equal terms in the world maritime marketplace in the 21st century. Existing legislation reflects the past, hurts the industry and produces a negative economic impact on the United States. Subsidies and cargo preferences are an expensive way to pay for national security when less costly alternatives may exist. The Congress' own investigative arm, the GAO, has found cargo preference laws increase costs and have only mixed results. (GAO, 1994a). Legislation should be considered which encourages U.S. flagging as an economic alternative within the framework of the global maritime industry.

2. The Maritime Administration must work with the U.S. maritime industry to identify "best practices", which, along with new legislation, will invite a range of maritime industries back to the U.S. The goal is to create the appropriate "shipping milieu" in the U.S. as described by Sletmo and Holste. With the right business climate, the U.S. maritime industry should be able to develop into an important member of the world maritime industry. While foreign flag ships generally provide a low risk source of sealift, DoD would clearly reduce risk as the U.S. maritime industry is enhanced.

3. The Military Sealift Command should lead the Department of Defense in developing an appropriate method to assess the risks associated with the various sealift alternatives. Special emphasis should be placed on foreign flag vessels. Efforts should continue to quantify sustainment sealift requirements across the range of possible conflict scenarios.

C. FUTURE STUDY

This thesis provides an introduction to an important and complicated topic. There are several areas, identified below, that warrant further investigation.

1. What is the state of the world maritime industry and what are the effects of globalization on it? The recent sale of such U.S. lines as SeaLand, Lykes Lines and American President Lines to foreign firms suggests a consolidation of the world shipping industry. What are the implications of this for the U.S. in general and the DoD specifically?

2. How does DoD conduct risk assessment for strategic sealift? Is this approach adequate? What should DoD incorporate into a risk assessment program aimed at strategic sealift? How should DoD assess risk associated with the use of foreign flag vessels?
3. H.R. 2159, H.R. 3225 and S. 1858 are bills pending before the 106th Congress. What is the outcome of these bills? If they are not enacted, why not? What do reasons for defeat say about the U.S. maritime industry? What actions should DoD take with regards to these or subsequent bills?

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APPENDIX. SUMMARY OF SELECT MARITIME LEGISLATION PENDING BEFORE 106TH CONGRESS

This appendix provides brief summaries of H.R. 2159, H.R. 3225 and S.1518 (Transportation Institute, 2000). The website www.thomas.loc.gov provides up to date status and information on legislative matters.

H.R. 2159 United States-Flag Merchant Marine Revitalization Act of 1999

Sponsor: Rep. Jim McCrery (R-La.)

Cosponsors: 6 as of 7/30/99

Status: 6/10/99

Introduced.
Referred to Ways and Means Committee,
Transportation and
Infrastructure Committee and Armed Services
Committee.
Referred to Coast Guard and Maritime
Transportation Subcommittee.

Summary: (as introduced)

Amends the Merchant Marine Act of 1936 and the Internal Revenue Code to expand the use of the Capital Construction Fund in order to revitalize the international competitiveness of the U.S.-flag merchant marine.

Allow earnings from U.S.-flag, foreign built vessels to be deposited into a Capital Construction Fund (CCF) in order to increase the amount of capital available to build vessels in an American shipyard.

Allows CCF monies to be withdrawn to build, in an American shipyard, a vessel for operation under the United States flag in the oceangoing domestic trades.

Allow CCF monies to be withdrawn to acquire containers or trailers for use on a U.S.-flag vessel in order to better ensure that cargo moves on American vessels in a safe and efficient fashion.

Allow CCF funds to be used for payment of a lease of qualified vessel and containers, if lease is at least five years. Under current law, withdrawals from the CCF may only be used for purchases or debt payments.

Allow a vessel owner to deposit into a CCF the 50 percent duty arising from foreign ship repairs to ensure that the duty is used to the benefit of U.S. shipyards.

Remove the CCF as an alternative minimum tax adjustment so that the full intended benefits of the program--the accumulation of private capital for the construction of commercial vessels in the U.S. shipyards--are realized.

Allows CCFs to invest in a broader range of income producing assets as long as these assets have been approved by the Secretary of Treasury. This provision codifies current investment practices that have been approved by the Maritime Administration of the Department of Transportation.

H.R. 3225	National Security Sealift Enhancement Act of 1999	
Sponsor:	Rep. Jim McCrery (R-La.)	
Cosponsors:	1 as of 11/4/99	
Status:	11/4/99	Introduced. Referred to Ways and Means Committee
Summary:	(as introduced)	

TITLE I – Capital Construction Fund (CCF) Reform. Expand the CCF to allow deposits of earnings from U.S. flag, foreign built ships to be contributed to a CCF for the construction of vessels in the United States. Qualified withdrawals from a CCF would continue to apply only to U.S. built vessels and would be expanded to include vessels that operate between coastwise points of the United States. Contributions to a CCF would no longer be treated as preference items under the corporate Alternative Minimum Tax (AMT). Owners of U.S. flag ships would also be allowed to deposit into a CCF the duty arising from foreign ship repairs.

TITLE III – Seaman’s Wage Exclusion. Consistent with the current policies and objectives of Section 911 of the Internal Revenue Code, the foreign earned income exclusion would be extended to American merchant mariners by changing the definition of “foreign country” to include a principal place of employment aboard a commercial vessel operating outside the United States, and amending the foreign residence test to include work aboard a vessel.

TITLE V – Deduction of Expenses. The existing tax provision which permits the deduction of expenses with respect to conventions, seminars or other meetings on U.S.-flag cruise vessels traveling between U.S. ports would be expanded to include U.S.-flag cruises between the United States and foreign ports.

S. 1518 National Security Sealift Enhancement Act of 1999

Sponsor: Sen. John Breaux (D-La.)

Cosponsors: 1 as of 11/4/99

Status: 11/4/99

Introduced.
Referred to Finance Committee

Summary: (as introduced)

TITLE I -- Capital Construction Fund (CCF) Reform. Expand the CCF to allow deposits of earnings from U.S. flag, foreign built ships to be contributed to a CCF for the construction of vessels in the United States. Qualified withdrawals from a CCF would continue to apply only to U.S. built vessels and would be expanded to include vessels that operate between coastwise points of the United States. Contributions to a CCF would no longer be treated as preference items under the corporate Alternative Minimum Tax (AMT). Owners of U.S. flag ships would also be allowed to deposit into a CCF the duty arising from foreign ship repairs.

TITLE II -- Election to Expense U.S. Flag Vessels. The owner of any U.S. flag vessel engaged in the international trade of the U.S. would be able to fully deduct that vessel in the year in which the vessel is acquired and documented under U.S. flag.

TITLE III -- Seaman's Wage Exclusion. Consistent with the current policies and objectives of Section 911 of the Internal Revenue code, the foreign earned income exclusion would be extended to American merchant mariners by changing the definition of "foreign country" to include a principal place of employment aboard a commercial vessel operating outside the United States, and amending the foreign residence test to include work aboard a vessel.

TITLE IV -- Alternative Minimum Tax (AMT) Relief. In order to be internationally competitive, the AMT would be repealed with respect to shipping income.

TITLE V -- Deduction of Expenses. The existing tax provision which permits the deduction of expenses with respect to conventions, seminars or other meetings on U.S.-flag cruise vessels traveling between U.S. ports would be expanded to include U.S.-flag cruises between the United States and foreign ports.

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